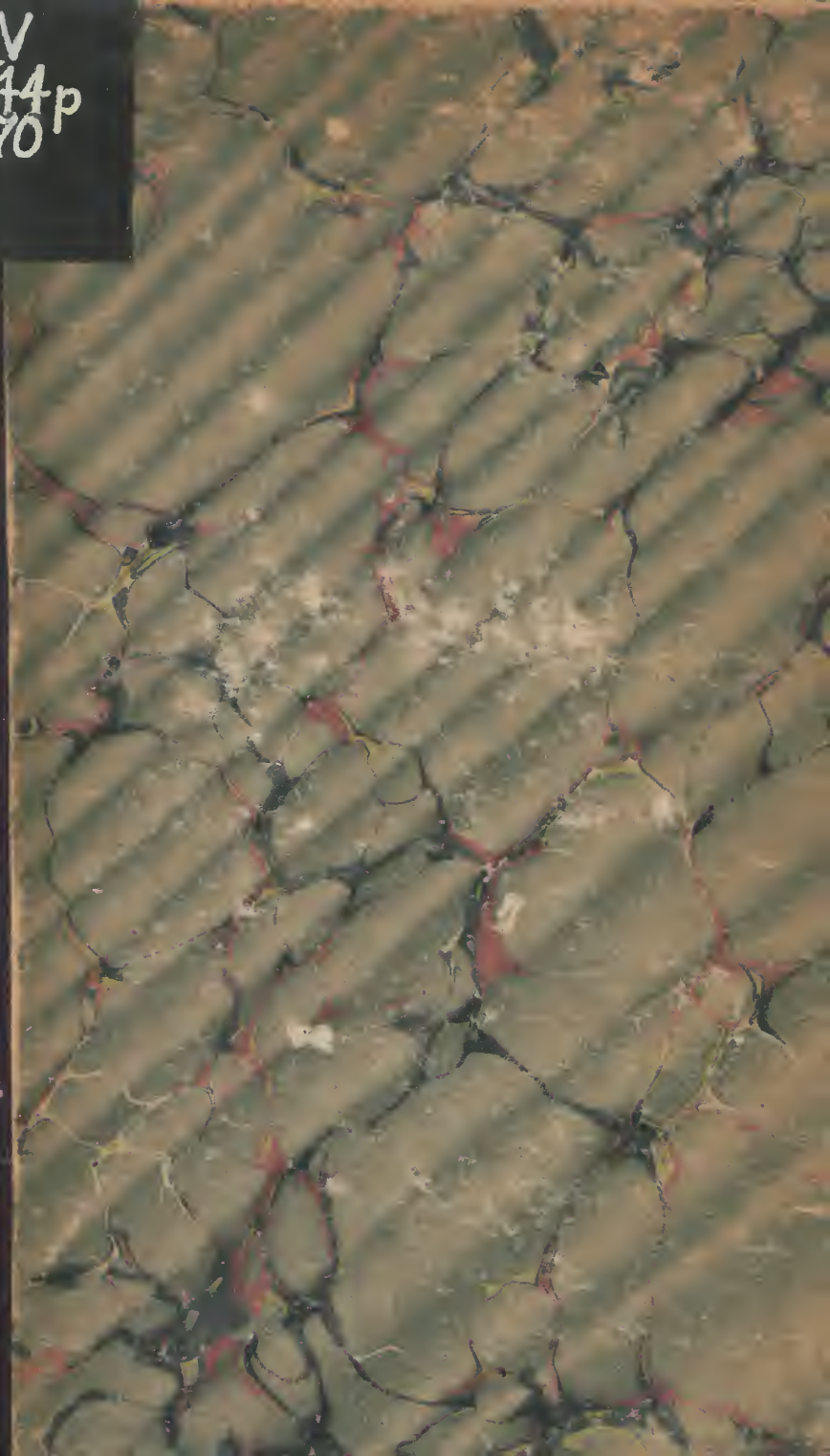
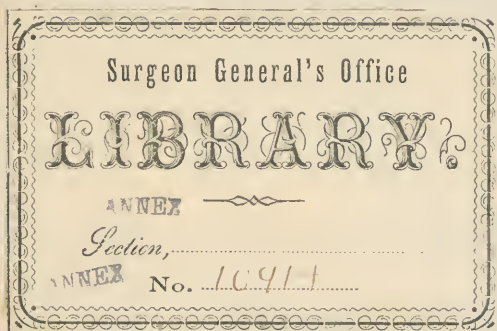


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POISONING

BY

BIN-IODIDE OF MERCURY.

REPORT OF A CASE OF POISONING

BY BIN-IODIDE OF MERCURY,

OCCURRING AT FORT GRATIOT, MICHIGAN,

JUNE 27, 1899.

BY

M. K. TAYLOR, CAPT. AND ASST SURG. U. S. A.

TO THE

ST. CLAIR AND SANILAC COUNTY MEDICAL SOCIETY.

PORT HURON, MICH.

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## REPORT.

Private (Geo. E. Lee, Co. "H," 1st U. S. Infantry, aged about 25 years, of small stature, and rather spare habit, presented himself at the post hospital on the morning of June 20th, 1869, suffering from Syphilitic Ozena of the left nares. He stated that it had been troubling him for some time, but not until quite recently had the discharge become offensive. The nose was considerably swollen on that side, the discharge quite profuse, and occasionally a little bloody. He contracted Syphilis two years since. The following prescriptions were made :

- ℞ Potassa Iodidi ʒ ij.  
Hydrarg. Bin-Iodidi gr. jv.  
Spr. Lavendulae Comp. fl. ʒ ij.  
Syr. Simplex qs. ft. ʒ jv. M.  
Sig., a teaspoonful after each meal.
- ℞ Hydrarg. Bi-Chloridi gr. ij.  
Aqua Pur. ʒ ij. M. ft. sol.  
Sig., a half ounce to be injected into the nasal cavity three times a day.

A rapid improvement followed the course of treatment, but on the 24th he re-appeared suffering from Intermittent Neuralgia of the head, face and chest of the right side. Twenty-five grains of Quinine were prescribed, in doses of five grains each, which arrested the disease by the next morning, when bitter tonics were directed to be taken after meals for a few days. On the 27th, he appeared at the sick call again, and seemed about able to return to his usual duties. The nasal discharge had entirely ceased, the offensive odor was all gone, and the swelling of that side of the nose was reduced to nearly its normal condition. I directed the continuance of the remedies. He was allowed to take these to his quarters from the beginning, being instructed, however, as to their nature, and admonished to take proper care in their use. It would seem from my subsequent investigations



that the teaspoon he used was rather small, so that he was not taking the eighth of an ounce at a dose as I had directed. He showed the bottle to one of the corporals of his room, just as he took the poison, and the quantity remaining, as described by him, must have equaled at least two ounces. After exhibiting it he remarked "*he would finish that medicine anyhow.*" He had, also, during the day, expressed a wish that he were dead to several persons in the garrison, but in such a joecular way that no one paid any attention to it. Having swallowed the medicine he proceeded to the hospital and asked the steward to refill the prescription, then leaving the bottle he returned to his quarters and lay down on a low bench near his bunk. In about twenty minutes his comrades noticed that there was something peculiar about him, and tried to get him up, but he was insensible, breathing heavily, and frothing some at the mouth. Becoming alarmed the non-commissioned officer in charge notified me that he was very ill, and said that he thought Lee had, intentionally, taken poison. I saw him immediately. He was wholly insensible, had stertorous respiration with a little frothing at the mouth, respiratory action nearly normal, except slightly jerking with the inspiratory movement, pulse 80, moderately full and soft, general turgescence of the face and extremities, the lips partly closed, flabby and of a bright crimson, eyelids closed, but on opening them the eyes were fixed, looking directly forward, pupils quite large, insensible to light, and the lids, unsupported, slowly returned to the former condition. The head was thrown moderately back, fixed, and there was a slight tonic spasm of most of the posterior muscles of the trunk. On attempting to raise the head, the whole trunk was raised at the same time, flexion taking place at the hips only. Extremities flexible and warm, which, together with the face, presented a decided venous turgescence, and accompanied by a flush, in places amounting almost to a rose color; upon the anterior aspect of the chest this was also very marked. While making preliminary arrangements to remove him to the hospital he had spasms of the lower extremities, involving the the flexors below knees, the knees being flexed on the thighs, the muscles of the plantar surface of the foot and flexors of the toes being very tense, hands affected but little, amounting only to a slight rigidity; this extended to the whole body, accompanied by moderate opisthotonos. The spasm lasted scarcely a half minute, and was then followed by very decided short, quick, spasmodic action of the transverse muscles of the abdomen, occurring at irregular intervals of a few seconds, this was so much so as to produce an exceedingly flattened condition of this region. There



was no effort at vomiting. The functions of deglutition were entirely paralysed so that on introducing fluids into the mouth they passed directly into the trachea producing strangulation, and threatening suffocation. I had him removed immediately to the hospital. When laying him on his cot a much more severe spasm occurred amounting to a moderately severe epileptic convulsion, and difficult to be distinguished from the ordinary exhibition of that malady, except in the subsequent recurring spasmodic actions of the abdominal muscles. Immediately after this the venous distention and general capillary congestion were considerably increased, the pulse smaller and more feeble, insensibility, flabby lips and louder stertor, with depressed temperature of the extremities continued, the rhythm of the pulse and respiration remaining unchanged, as well as the rigidity, and he had all the appearances of impending dissolution.

The treatment consisted first in administering about  $\mathfrak{z}$  jv. aqua calcis diluted with an equal quantity of water. Failing to get him to swallow the fluid in the ordinary way, and while the stomach pump was being arranged, I placed him in a recumbent position and putting a small quantity of fluid in the mouth, then closing the nostrils, an effort at deglutition was induced so that by repeating the process I succeeded in getting the whole amount down. This I followed by a solution of Bi. Carb. Potassa, when regurgitation of the contents of the stomach in small quantities occurred, corresponding occasionally with the abdominal muscular contractions, at other times not. It was not vomiting as generally observed, but a quick regurgitation such as one often feels after a hearty meal, when the contents of the stomach are somewhat acrid, and are thrown up accompanied with some gas. In the course of fifteen minutes about a pint had been discharged by this process with manifest relief, as he began to be more conscious of what was required of him, though deglutition was still difficult. This was followed as fast as practicable with two drachms of Fluid Ext. Ipecac, given in a glass of warm water. But a singular phenomenon was now manifested, consisting chiefly in this, that so often as he attempted to swallow, the fluid would pass seemingly down the Oesophagus nearly to the stomach and then, instantly, be rejected by regurgitation with a small portion of the contents of the stomach; this peculiarity was manifested only at such times as he attempted to swallow. Before I gave the Ipecac another slight convulsion occurred, followed by a diminution of the spasmodic action of the muscles of the abdomen, if he was allowed to remain undisturbed. By

closing the nasal orifices I succeeded in getting down most of the Ipecac, when I permitted him to lie quietly for a few moments. He soon relapsed into a state of stupor, with his eyes partially closed and fixed as at first, but with less muscular rigidity of the posterior muscles of the trunk. At the expiration of about ten minutes I had him aroused, when on repeating a full dose of the Ipecac he vomited freely, became conscious of his condition and complained of intense pain in the region of the umbilicus and below, but said nothing of any distress in the stomach. In the evening all the distress in the abdomen had in a measure ceased, and he then complained of his throat. Since his recovery he says this distress of the throat was a sense of constriction, and by his own sensation located it in the larynx, though he says it hurt him when attempting to swallow. After the free vomiting he was allowed to rest for a half hour, when Sulphate of Morph., in doses of 1-6 of a grain with 1-4 of a grain of Ipecac, was given every fourth hour for the next 12 hours and after that a free saline to open the bowels. Ptyalism appeared in about 30 hours but not very severe and the tongue was reddened along the middle, fissured and dry. There was no disposition to diarrhoea. The second day he began to ask for food, when milk and lime-water were allowed, and he convalesced rapidly. I may remark that the nasal syphilitic ulcerations improved equally fast.

This case of poisoning presented the aspects of profound sedation. The muscular spasms of the abdomen may be regarded as efforts in part to produce emesis, but the sedative action of the agent was so powerful on the stomach as to arrest the usual muscular contractions of that organ, and prevent the discharge of its contents until the poison was rendered less active by its partial chemical decomposition, and conversion into a Prot. Iodide. When he became rational he stated that the first sensation in the stomach was a slight nausea soon followed by some pain though not very severe, and this by a very severe pain in the back part of the neck with excessive secretion of saliva, after which he remembers nothing until the operation of the emetic. It was only a few moments after this frothing at the mouth had commenced, from the account given by his room-mates as well as from his non-recollections of events that he became insensible, and remained so until relieved. The full poisonous effects were exhibited in about fifteen minutes after he took the medicine; and from that time until he regained his consciousness was over three quarters of an hour. The quantity of the poison taken must have

been quite two grains of the Biniodide of Mercury and one drachm of Iodide of Potassa.

Nearly all of the works on Toxicology say that the action of Biniodide of Mercury is analogous to that of Bichloride. It is very clear however that in this case such did not obtain. That the agent is equally prompt, powerful and dangerous there can be no doubt; indeed I am not sure but it is more rapid in its effects from the fact that unlike Corrosive Sublimiate it forms no precipitate with albumen and therefore remains soluble in the stomach in the presence of any albuminous matter in its contents.

The case taking me somewhat by surprise, I had to be governed solely by my prepossessions in regard to the chemical relations of the poison, thinking for the moment that the Carbonate of Potassa obtained by the decomposition of the Bicarbonate with the lime water would decompose and reduce it to a still less active agent than the Prot. Iodide. A very casual examination of the subject, however, led me to correct such impressions. The Mercury cannot be separated from its Iodine affinities in the presence of the Iodide of Potassium, so far as I am aware, but by Sulphuretted Hydrogen, either free or in combination with an Alkaline base as with Potassa or Ammonia, when the Sulphide of Mercury is thrown down. Strictly speaking therefore, the Sulphides of Ammonia or Potassa or agents of like character are its only antidotes. The Sulphide of Potassa is the most eligible as it can be administered in doses of five or six grains largely diluted with safety; a quantity which would be quite sufficient to neutralize an equal amount of the poison.

The works on Toxicology direct us to employ albumen freely in poisoning by Corrosive Sublimiate with the view of forming an insoluble precipitate with the agent, and say further that the treatment for poison by the Biniodide should be the same. In this there could not be a greater error. The latter forms no precipitate with albumen; on the contrary where albumen of the egg has been partially coagulated by being kept for some time in connection with lime water, or salt, or the usual means of preserving eggs for winter use, the Biniodide in its solution with Iodide of Potassium renders it soluble at once, and the effects are such that the reactions of the Sulphide of Potassa are greatly delayed; indeed it requires several hours to obtain a precipitate of the Mercury in the presence of albumen, and not until a lapse of a whole day is the Biniodide of Mercury fully decomposed. It is clear therefore that albumen

*The action of mercuric iodide on albumen is delayed in the presence of lime water or salt.*

should not be given as an antidote in this form of poisoning; for it shields the agent from the action of remedies which under other circumstances promptly decompose it and render it comparatively inert.

As Biniodide of Mercury is becoming a popular remedy in the treatment of diseases of Syphilitic origin, and mistakes are liable to occur, it would seem necessary that our Toxicologists should give this subject a more thorough investigation and indicate to the profession some additional means of counteracting its baneful effects. Not only this, but I am fully satisfied that if its peculiar and nearly painless or stupefying action were more fully understood by the people at large, those seeking the means of self destruction would choose this in place of almost any other, save perhaps Chloroform and Opium. Its sedative and stupefying action on the nervous system is appalling when taken in over-doses, and only the most prompt and efficient efforts will avail in saving life. So far as my means of judging indicate, the employment of Liqueur Potassa, solutions of Carb. Potassa, extemporaneously prepared, lime water followed immediately by Bicarb. Potassa; and the Sulphide of Ammonia or Potassa, the latter being the better, followed by emetics or the stomach pump, constitute our chief antidotes.

The extreme rarity of casualties of this kind—no cases being reported, according to the leading works on medical jurisprudence—has led to neglect on the part of Toxicologists, and Chemists in determining more explicitly, in varying emergencies, the best course to pursue in the treatment. My own means at command are far too limited to enable me to fix upon anything more definitely as an antidote, or to suggest more an efficient treatment when the articles above named are not at hand. I have little faith in emetics alone if the poison has been taken long before the patient is seen by the medical attendant.

I have spoken of the poisonous agent in this case as the Biniodide of Mercury, though chemically speaking, it is a solution of the Hydrargyro-Iodide of Potassium. Inasmuch, however, as we prescribe it as a Biniodide, I prefer so to consider it.











